

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

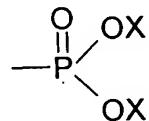
**LISTING OF CLAIMS:**

1.-59. (Cancelled)

60. (New) A dendritic polymer of generation n composed of:

- a central core § of valence m;
- optionally, generation chains branching around the core;
- an intermediate chain at the end of each bond around the core or at the end of each generation chain, where appropriate; and
- a terminal group at the end of each intermediate chain,

wherein m represents an integer from 3 to 8; n represents an integer from 0 to 12, and further wherein the terminal group is composed of the group of formula:



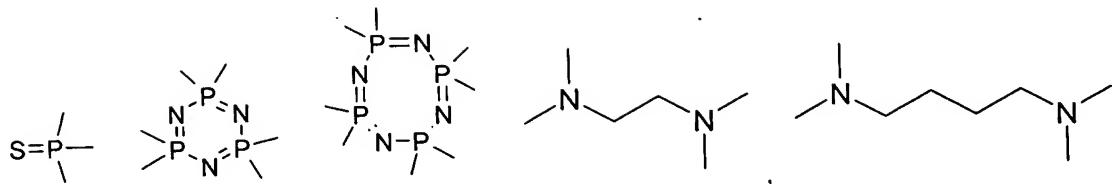
wherein each of the radicals X, which are identical or different, represents a radical -Me, -H and/or -M<sup>+</sup>, wherein M<sup>+</sup> is a cation,

with the exception of the compound of formula:



61. (New) A dendritic polymer according to claim 60, wherein the central core contains at least one phosphorus atom.

62. (New) A dendritic polymer according to claim 60, wherein the central core is selected from the following groups:



63. (New) A dendritic polymer according to claim 60, wherein the central core has the formula:



64. (New) A dendritic polymer according to claim 60, having a DAB-AM, PAMAM, or PMMH structure.

65. (New) A dendritic polymer according to claim 60, wherein  $M^+$  represents the cation of an element of group IA, IIA, IIB or IIIA of the periodic table or  $M^+$  represents  $HNEt_3^+$ .

66. (New) A dendritic polymer according to claim 60, wherein M is selected from sodium and potassium atoms.

67. (New) A dendritic polymer according to claim 60, wherein n is from 0 to 3.

68. (New) A dendritic polymer according to claim 60, wherein m is selected from 3, 4 and 6.

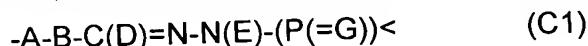
69. (New) A dendritic polymer according to claim 60, wherein the generation chains are selected from linear and branched hydrocarbon chains having from 1 to 12 chain members and optionally being one or more double or triple bonds, each of said chain members optionally being selected from a heteroatom, a group Aryl, Heteroaryl,  $>C=O$ , and  $>C=NR$ , each chain member being optionally substituted by

one or more substituents selected from -Alkyl, -Hal, -NO<sub>2</sub>, -NRR', -CN, -CF<sub>3</sub>, -OH, -OAlkyl, -Aryl, and -Aralkyl,

wherein

R and R', which are identical or different, each independently of the other represents a hydrogen atom or a radical -Alkyl, -Aryl, or -Aralkyl.

70. (New) A dendritic polymer according to claim 60, wherein the generation chains, which are identical or different, are represented by the formula:



wherein:

A represents an oxygen, sulfur or phosphorus atom or a radical -NR-;

B represents a radical -Aryl-, -Heteroaryl-, or -Alkyl-, each of which is optionally substituted by a Halogen atom or by a radical -NO<sub>2</sub>, -NRR', -CN, -CF<sub>3</sub>, -OH, -Alkyl, -Aryl, or -Aralkyl;

C represents a carbon atom,

D and E, which are identical or different, each independently of the other represents a hydrogen atom, a radical -Alkyl, -OAlkyl, -Aryl, or -Aralkyl, each of which is optionally substituted by a Halogen atom or by a radical -NO<sub>2</sub>, -NRR', -CN, -CF<sub>3</sub>, -OH, -Alkyl, -Aryl, or -Aralkyl;

G represents a sulfur, oxygen, selenium or tellurium atom or a radical =NR;

R and R', which are identical or different, each independently of the other represents a hydrogen atom or a radical -Alkyl, -Aryl, or -Aralkyl; and

< represents the two bonds at the end of each generation chain.

71. (New) A dendritic polymer according to claim 70, wherein A represents an oxygen atom.

72. (New) A dendritic polymer according to claim 70, wherein B represents a phenyl ring optionally substituted by a halogen atom or by a radical NO<sub>2</sub>, -NRR', -CN, -CF<sub>3</sub>, -OH, -Alkyl, -Aryl, or -Aralkyl.

73. (New) A dendritic polymer according to claim 70, wherein B represents an unsubstituted phenyl ring.

74. (New) A dendritic polymer according to claim 70, wherein D represents a hydrogen atom.

75. (New) A dendritic polymer according to claim 70, wherein E represents a radical -Alkyl.

76. (New) A dendritic polymer according to claim 70, wherein G represents a sulfur atom.

77. (New) A dendritic polymer according to claim 60, wherein the generation chains are represented by the formula:



wherein

A' and B' each independently of the other represents a radical -Alkyl, -Alkenyl, or -Alkynyl, each of which is optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO<sub>2</sub>, -NRR', -CN, -CF<sub>3</sub>, -OH, -OAlkyl, -Aryl, and -Aralkyl; and

R and R' have the meanings defined in claim 60.

78. (New) A dendritic polymer according to claim 60, wherein the generation chains are represented by the formula:



wherein

A'' represents a radical -Alkyl, -Alkenyl, or -Alkynyl, each of which is optionally substituted by one or more substituents selected from -Alkyl, -Hal, -NO<sub>2</sub>, -NRR', -CN, -CF<sub>3</sub>, -OH, -OAlkyl, -Aryl, and -Aralkyl; and wherein R and R', which are identical or different, each independently of the other represents a hydrogen atom or a radical -Alkyl, -Aryl, or -Aralkyl.

79. (New) A dendritic polymer according to claim 60, wherein the generation chains are identical.

80. (New) A dendritic polymer according to claim 60, wherein the intermediate chains, which are identical or different, are represented by formula:

-J-K-L- (C2)

wherein

J represents an oxygen atom, a sulfur atom or a radical -NR-;

K represents a radical -Aryl-, -Heteroaryl-, or -Alkyl-, each of which is optionally substituted by a Halogen atom or by a radical -NO<sub>2</sub>, -NRR', -CN, -CF<sub>3</sub>, -OH, -Alkyl, -Aryl, or -Aralkyl;

L represents a hydrocarbon chain having from 1 to 6 chain members and optionally having one or more heteroatoms and/or optionally having one or more double or triple bonds, each of said chain members being optionally substituted by one or more substituents selected from -OH, -NRR', and -OAlkyl; and

R and R', which are identical or different, each independently of the other represents a hydrogen atom or a radical -Alkyl, -Aryl, or -Aralkyl.

81. (New) A dendritic polymer according to claim 70, wherein J and K are equal to A and B, respectively.

82. (New) A dendritic polymer according to claim 80, wherein J represents an oxygen atom.

83. (New) A dendritic polymer according to claim 80, wherein K represents a phenyl ring optionally substituted by a Halogen atom or by a radical -NO<sub>2</sub>, -NRR', -CN, -CF<sub>3</sub>, -OH, -Alkyl, -Aryl, or -Aralkyl.

84. (New) A dendritic polymer according to claim 80, wherein K represents an unsubstituted phenyl ring.

85. (New) A dendritic polymer according to claim 80, wherein L represents a radical -Alkyl-, -Alkenyl- or -Alkynyl-, each of which is optionally substituted by one or more substituents selected from -OH, -NRR', and -OAlkyl.

86. (New) A dendritic polymer according to claim 80, wherein L represents a radical -Alkenyl- or a radical -Alkyl-, optionally substituted by a radical -OH .

87. (New) A dendritic polymer according to claim 80, wherein L represents a radical -Alkyl- optionally substituted by a radical -OH.

88. (New) A dendritic polymer according to claim 60, wherein the intermediate chains are represented by formula (C2') :

-L"- (C2')

wherein L" represents an -Alkyl- chain having from 1 to 6 chain members, optionally substituted by one or more substituents selected from -OH, -NRR', and -OAlkyl.

89. (New) A dendritic polymer according to claim 60, which is represented by the formula (I):

$\S-\{(A-B-C(D)=N-N(E)-(P(=G))<\}^n-[J-K-L-PO_3X_2]_2\}_m$  (I)

in which:

$\S$ , A, B, C, D, E, G, N, P, J, K, L, X, m, n, and < have the meanings defined above.

90. (New) A dendritic polymer according to claim 60, which is represented by the following formula (I-2):

$\S-\{(A'-(C=O)-N(R)-B'-NH-)^n[L"-PO_3X_2]\}_m$  (I-2)

in which:

$\S$ , A', B', C, N, P, X, L", m, and n have the meanings defined above.

91. (New) A dendritic polymer according to claim 60 which are represented by the following formula (I-3):

$\S-\{(A"-NH-)^n[L"-PO_3X_2]\}_m$  (I-3)

in which:

§, A'', N, P, X, L'', m, and n have the meanings defined above.

92. (New) A method for preparing a dendritic polymer according to claim 60, comprising:

(i) reacting the corresponding dendritic polymer having a terminal function -CHO, -CH=NR or (P(=S)Cl<sub>2</sub> with

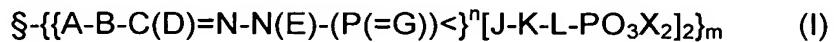
a compound of formula Z-PO<sub>3</sub>Me<sub>2</sub>, wherein Z represents:

- either -H when the function is -CHO or -CH=NR,
- or the intermediate chain defined above when said function represents -(P(=S)Cl<sub>2</sub> ;

(ii) optionally followed, when X represents H or M, by a step which comprises converting the dendritic polymer obtained in (i) having a -PO<sub>3</sub>Me<sub>2</sub> termination into the corresponding dendritic polymer having a -PO<sub>3</sub>H<sub>2</sub> termination;

(iii) optionally followed, when X represents M, by a step which comprises converting the dendritic polymer obtained in (ii) having a -PO<sub>3</sub>H<sub>2</sub> termination into the salt of the corresponding dendritic polymer having a -PO<sub>3</sub>M<sub>2</sub> termination.

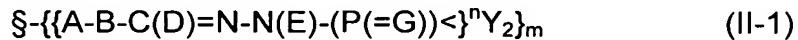
93. (New) A method for preparing a dendritic polymer according to claim 89 of formula (I)



in which:

§, A, B, C, D, E, G, N, P, J, K, L, X, m, n, and < have the meanings defined above, wherein said method comprises:

(i) a step which comprises treating the corresponding dendritic polymer of formula



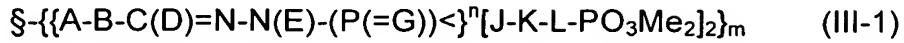
wherein Y represents:

- either -J-K-L', wherein L' represents a radical -CHO or -CH=NR;
- or -Cl;

with a compound of the formula Z-PO<sub>3</sub>Me<sub>2</sub>, wherein Z represents:

- either H- when Y represents -J-K-L';
- or H-J-K-L- when Y represents Cl;

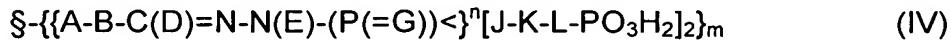
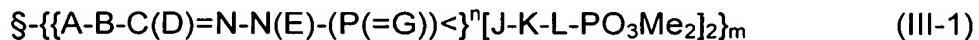
to obtain a dendritic polymer of formula (III-1):



in which:

§, A, B, C, D, E, G, N, P, J, K, L, R, m, n, and < have the meanings defined above,

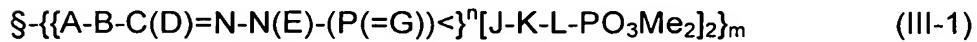
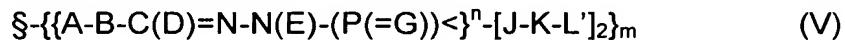
(ii) optionally followed, when X represents H or M, by a step which comprises converting the dendritic polymer of formula (III-1) obtained in (i) into the corresponding dendritic polymer of formula (I) in which X represents a hydrogen atom, according to the following reaction scheme:



in which §, A, B, C, D, E, G, N, P, J, K, L, n, m, and < have the meanings defined above,

(iii) optionally followed, when X represents M, by a step which comprises converting the dendritic polymer of formula (IV) obtained in (ii) into the corresponding salt of formula (I) wherein M represents a metal atom.

94. (New) A method according to claim 83, wherein step (i) comprises the following reaction:

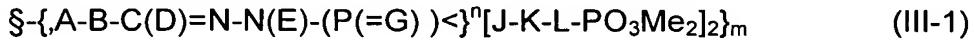
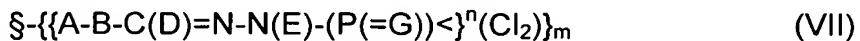


wherein §, A, B, C, D, E, G, N, P, J, K, L, L', m, n, and < have the meanings defined above, and

wherein said reaction is carried out in the presence of an organic or inorganic base, at a temperature of from -80°C to 100°C.

95. (New) A method according to claim 94, wherein the base is triethylamine.

96. (New) A method according to claim 93, wherein step (i) comprises the following reaction:



wherein

$\S$ , A, B, C, D, E, G, N, P, J, K, L, m, and n have the meanings defined above, and

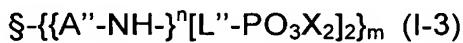
wherein said reaction is carried out in solution in a polar aprotic solvent, in the presence of an organic or inorganic base, at a temperature of from -80°C to 100°C.

97. (New) A method according to claim 96, wherein the base is cesium carbonate.

98. (New) A method for preparing a dendritic polymer according to claim 60 of formula (I-2)

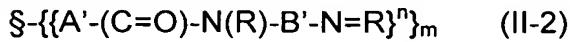


or of the following formula (I-3):



in which  $\S$ , A', B', C, A'', N, P, X, L'', m, and n have the meanings defined above, comprising

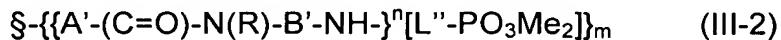
step (i), which comprises reacting the corresponding dendritic polymer n of formula



wherein R is a radical >Alkyl,

with a compound of the formula H-PO<sub>3</sub>Me<sub>2</sub> (VI),

(ii) optionally followed, when X represents H or M, by a step which comprises converting the dendritic polymer of formula (III-2) or (III-3) obtained in (i) in which X represents a Methyl radical into the corresponding dendritic polymer of formula (I-2) or (I-3) in which X represents a hydrogen atom, according to the following reaction scheme:



(iii) optionally followed, when X represents M, by a step which comprises converting the dendritic polymer of formula (IV-2) or (IV-3) obtained in (ii) into the corresponding salt.

99. (New) A method according to claim 98, wherein step (i) is carried out in the presence of an organic or inorganic base, at a temperature of from -80°C to 100°C.

100. (New) A method according to claim 98, wherein reaction (ii) is carried out:

- by the action of a trimethylsilane halide, in a polar aprotic organic solvent,
- followed by the action of anhydrous MeOH, which is added to the reaction mixture.

101. (New) A method according to claim 100, wherein the trimethylsilane halide is Me<sub>3</sub>SiBr.

102. (New) A method according to claim 98, wherein step (iii) comprises a reaction in which the compounds of formula (IV) are made to act in the presence of a base.

103. (New) A method according to claim 102, wherein the base is selected from sodium hydroxide and potassium hydroxide.

104. (New) A compound of formula (VIII):



in which

Z represents H or a protecting group for the function -JH;

J represents an oxygen atom, a sulfur atom or a radical -NR-;

K represents a radical -Aryl-, -Heteroaryl-, or -Alkyl-, each of which is optionally substituted by a Halogen atom or by a radical -NO<sub>2</sub>, -NRR', -CN, -CF<sub>3</sub>, -OH, -Alkyl, -Aryl, or -Aralkyl;

L represents a linear or branched hydrocarbon chain having from 1 to 6 chain members, each of said chain members optionally being selected from a heteroatom, and/or optionally having one or more double or triple bonds, each of said chain members being optionally substituted by one or more substituents selected from -OH, -NRR', -OAlkyl, -Alkyl, -Hal, -NO<sub>2</sub>, -CN, -CF<sub>3</sub>, -Aryl, and -Aralkyl.

105. (New) A compound according to claim 104, wherein J represents an oxygen atom.

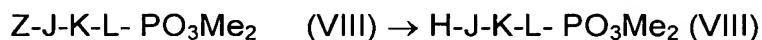
106. (New) A compound according to claim 104, wherein K represents an optionally substituted phenyl ring.

107. (New) A compound according to claim 104, in which K represents an unsubstituted phenyl ring.

108. (New) A compound according to claim 104, in which L represents a radical -Alkyl- optionally substituted by a radical -OH, or L represents a radical -Alkenyl-.

109. (New) A compound according to claim 104, in which L represents a radical -Alkyl-.

110. (New) A method for preparing a compound of formula (VIII) according to claim 104, in which Z represents a hydrogen atom, which method comprises a step comprising the following reaction:

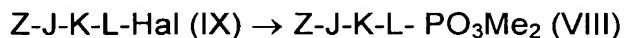


wherein J, K, and L have the meanings defined above and Z represents a protecting group for the function -JH,  
by deprotecting the protecting group Z.

111. (New) A method according to claim 110, wherein Hal represents bromine.

112. (New) A method according to claim 110, comprising a step in which tetrabutylammonium fluoride is made to act on the corresponding compound of formula (X), when J represents an oxygen atom and Z represents the group TBDMS (tert-butyl-dimethyl-silyl radical).

113. (New) A method for preparing a compound of formula (VIII) according to claim 110, in which the compound of formula (VIII) wherein Z represents the protecting group for the function -JH is obtained by a step which comprises the following reaction:



wherein J, K, L, and Z have the meanings defined in claim 110 and wherein Hal represents a halogen atom,  
by application or adaptation of Arbuzow's reaction.

114. (New) A method according to claim 113, in which the product of formula (IX) is reacted in the presence of trimethyl phosphite of formula  $P(OMe)_3$  (X), at a temperature of from -80°C to 150°C.

115. (New) A method for treating surfaces or being in contact with surfaces comprising using a dendritic polymer according to claim 60.

116. (New) A method according to claim 115, wherein said surfaces are metal, silica-based or oxide-based.

117. (New) A method according to claim 115, wherein said dendritic polymer is used as an additive in a composition that is to be in contact with or to treat said surface.

118. (New) A method according to claim 115, wherein said dendritic polymer is used as an anti-corrosive agent, a lubricating agent, a scale preventer or a flame retardant.